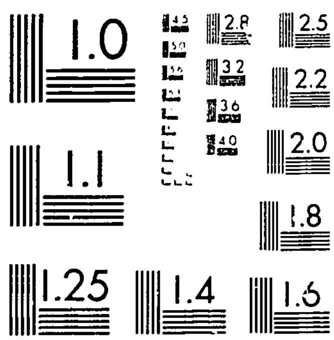
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ABSTRACT

This paper focuses on the scholastic achievement of five cohorts of white, middle-class children as they progressed through their first grade year of an elementary school. Multiwave data on several hundred children were gathered, from just before they entered first grade to the end of that grade in an attempt to clarify the process of early schooling. Specifically, researchers wanted to investigate how expectations of significant others and feedback provided to children may affect children's achievement and academic self-image in the first grade. It was found that parents' expectations for their children's performance responded to IQ of the child, to the child's sex, and to the kindergarten teacher's forecast. Parental expectations influenced only conduct marks (not reading or arithmetic marks) and had little impact on children's expectations except for year-end reading expectations. Other parental estimates did not influence children's marks or expectations directly. Over the first grade year children's expectations were largely indeterminate although expectations did respond to arithmetic mark feedback and to parental reading expectations by the end of the year. This finding is contradictory to assumptions that children's expectations for themselves crystallize soon after they start school. Children's performance levels from the first report card to the end of the first grade were highly continuous. This suggests that even the earliest marks children receive are major determinants of future evaluations and that teachers' earliest formal evaluations may play a leading role in determining achievement levels in young children. (Author/RH)

ACADEMIC EXPECTATIONS AND THE SCHOOL ATTAINMENT OF YOUNG CHILDREN

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Report No. 269

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Introductory Statement

The Center for Social Organization of Schools has two primary objectives: to develop a scientific knowledge of how schools affect their students, and to use this knowledge to develop better school practices and organization.

The Center works through four programs to achieve its objectives. The Policy Studies in School Desegregation program applies the basic theories of social organization of schools to study the internal conditions of desegregated schools, the feasibility of alternative desegregation policies, and the interrelation of school desegregation with other equity issues such as housing and job desegregation. The School Organization program is currently concerned with authority-control structures, task structures, reward systems, and peer group processes in schools. It has produced a large-scale study of the effects of open schools, has developed Student Team Learning Instructional processes for teaching various subjects in elementary and secondary schools, and has produced a computerized system for school-wide attendance monitoring. The School Process and Career Development program is studying transitions from high school to post secondary institutions and the role of schooling in the development of career plans and the actualization of labor market outcomes. The Studies in Delinquency and School Environments program is examining the interaction of school environments, school experiences, and individual characteristics in relation to in-school and later-life delinquency.

This report, prepared by the School Organization program, analyzes the effects of first-grade children's academic expectations on their school attainment.

ACADEMIC EXPECTATIONS AND THE SCHOOL

ATTAINMENT OF YOUNG CHILDREN

ABSTRACT

This paper focuses on the scholastic achievement of five cohorts of white middle-class children as they progressed through their first grade year. Estimates of block recursive models suggest the extent to which sex, IQ, and kindergarten teacher's forecast influenced parental perceptions of children's school abilities and, in turn, how these prior variables influenced children's own academic expectations and their first-grade marks in reading, arithmetic, and conduct. To our knowledge, such models have not previously been used to explicate data gathered from young children.

Parents' expectations for their children's performance responded to IQ (both directly, and indirectly through parents' estimates of children's ability), to the child's sex, and to the kindergarten teacher's forecast. Parental expectations influenced only conduct marks (not reading or arithmetic marks) and exerted little impact on children's expectations except for year-end reading expectations.

Parents' estimates of children's ability, of their (spouse's) intention to assist the child with homework, and of the total amount of schooling they thought their child would eventually complete, all served to clarify sources of parental expectations, but these variables did not influence children's marks or expectations directly.

Children's expectations were much less predictable than parents'

expectations. In fact over the first-grade year children's expectations were largely indeterminate although they did respond to arithmetic mark feedback and to parental reading expectations by the end of the year. This finding is contradictory to assumptions that children's expectations for themselves crystallize soon after they start school.

There was impressive continuity in children's performance levels from the first report card to the end of the first-grade year. This suggests that even the earliest marks children receive are strong determinants of future evaluations and that teachers' earliest formal evaluations may play a leading role in determining achievement levels of young children.

This paper addresses certain questions, never investigated before, about effects of schooling in first grade. Rightly or wrongly, we believe that <u>early</u> school attainment may hold the key to many puzzles about students' later attainment and about the nature of schooling in general. Hence, we are interested in what happens to children as they begin school and in how it comes to happen.

To our knowledge no previous work is available on how teachers' evaluations (the feedback provided by marks) affects children's performance in the first grade, nor is there previous research on how young children generally react to evaluation. There is a good deal of talk in the literature, much of it fuzzy, about young children's expectations or academic self-image, but no one has ever tried to trace how such expectations and images develop naturally during the life course. These are some of the many questions about the process of early schooling that prompted this research.

While models presented in this paper and our style of analysis resemble models and styles of analysis often seen in studies of adolescent status attainment, it would be a mistake for the reader to pigeon-hole this paper as another example of that kind of research. Our research could have considerable significance for studies of adolescent status attainment, as we will later point out, but this is not its main thrust.

Early Schooling

When children leave the protective circle of the family to start school, they start a new life. For the first time they are evaluated comparatively, relative to other children, by non-familial authorities. For the first time also they are evaluated in terms of their proficiency at abstract tasks like reckoning and reading. For most children, starting first grade begins an association with formal educational institutions that will endure for 12 years or longer. It seems likely therefore, that children's early experiences in their new environment are important, for folk wisdom and a good deal of scientific evidence suggest that the early days of school leave an indelible imprint on children in terms of two things: the notions they acquire about themselves as academic performers and the subject matters they learn. Later success or lack of success in school, and even general life chances could be shaped by children's experiences in the early grades. National (Kraus, 1973) and cross-national (Husen, 1969) data, for example, testify that by the end of third grade children have sorted themselves into achievement trajectories that they will more or less pursue for the rest of their lives. Other data at the classroom level, now beginning to appear, suggest that how children are treated in first grade affects their progress in second grade (Rist, 1970), and one recent report documents the likely influence of a first-grade teacher upon adults decades later (Pedersen, Faucher, and Eaton, 1978).

In his[1] classroom a child is compared with 20 to 30 other children his age. The net residue of these comparisons is thought to shape the child's evaluation of himself, variously termed the self-concept, self-image, or his expectations. We, along with many others, suspect that a child's expectations are critical for his academic development, because his forecasts for himself likely filter, color, and even determine his experiences. If he thinks he will do well, he will be glad to try. If, however, he thinks he will do poorly, he is apt to hang back and avoid doing the very things that will help him learn. Low expectations, furthermore, are infectious. Those who think poorly of themselves encourage others to adopt a pessimistic view of them also: the person who holds low expectations for himself encourages others to do likewise.

Fortunately over the last seven years we have been gathering multiwave data from several hundred children, starting at the time they began first grade. These data offer some hope of understanding how early school experiences may affect children both in terms of the academic expectations children develop and also in terms of their proficiency in reading and arithmetic.

The research to be reported in this paper includes data for children who started first grade in one white middle-class school for five successive years. The aggregated data were needed to obtain a sufficiently large number of cases. We followed each child for over a year, from just before he entered first grade to the end of that grade. At several points in the year we obtained data pertaining to each child from several different respondents, within the actual time frame dictated by substantive concerns for the timing of measurements (see Figure 1). For instance, we asked kindergarten teachers in the summer after the kindergarten year to predict each child's reading performance in first grade before the child entered first grade. We also asked parents in the early fall of the first grade year how well they expected their children to perform in reading, arithmetic, and conduct <u>before</u> there was any formal school evaluation given in those areas and before we asked children for their own expectations. Other measures were similarly taken at points in the school year dictated by consideration of the schooling process. Although the models to be presented are summarized by semester, the measures included in the model were actually obtained at a time corresponding to positions along the time line in Figure 1.

Figure 1

about here

This research was undertaken with the full realization that some of its methodological features would be far from ideal. For instance, ours is not a probability sample--the children to be described in this paper, as we said, all came from a single white middle-class school. However, we felt that, to have any hope of understanding the interplay of events and outcomes for very young children, rich data would be needed, and measurements would have to be taken as close as possible to the time when critical events occurred. The child, for instance, must be asked about how well he expects to do n reading and arithmetic <u>before</u> he receives his first marks in those subjects. It would be silly to think that at the end of the school year one could ask a first-grader to recall, let alone verbalize, exactly how he felt earlier about his first marks when he had been in school only two months. And it is probably wise to ask a kindergarten teacher to forecast a child's future performance in the summer, just after she has had the child in kindergarten, while her memories are still fresh and uncontaminated by (two) new classes of children. Few written records are kept in most kindergartens.

The tender age of the respondents has many implications for data collection. We had, of course, to secure written permission in advance from every child's parent to include the child in the study. If parents did not give permission, we had to devise procedures so that a child would not "feel left out" when we collected data. For example, if we were "playing a game" with the class to deduce peer rankings, the children whose parents had not given them permission to play were sent on an errand to the library, and the librarian kept them occupied there in order that they would not feel "left out." There is no way researchers can go into a classroom and interact with all but one or two of the small children. Furthermore, if any child, even though given parents' permission, was too shy to answer, or for any other reason balked at participating, we could not press the child; we dropped the child from that set of observations. Since all participation at every level is voluntary, an enormous amount of time was invested in public relations, answering parents' and teachers' questions and the like, and in making sure that the rights of these small children were respected.

In short, when young children are studied there has to be a trade-off between "independent" units and validity or completeness of response. Our sample, which consists of children enrolled in the first grade of a middle-class white suburban school for five successive years, has obvious drawbacks. It also has advantages. For research at this stage and of this type, we felt we had no real alternative. A probability sample which .d require repeatedly locating a target child, his parents, his present teacher, his teacher the year before, and then carrying out several data-gathering tasks at many times in a myriad of places would be silly at this stage of the work. It would lead to enormous attrition and, we would argue, make it virtually impossible to ensure the validity of children's responses. Each child must understand clearly what he/she is being asked to do and must not feel "picked on" or "singled out" during the measurement process. Furthermore, because cooperation of both teachers and adults is voluntary and because we cannot press children for responses, selective refusals would no doubt leave us with a far-from-random sample even if we had started to procure one. Some work has actually been done in Philadelphia and Baltimore with random samples of older school children, and these samples do avoid certain kinds of dependencies among units of the sample (having children in the same class, for example). But for the reasons listed above, when very young children are studied there has to be a trade-off between "independent" units and validity or completeness of response. (We wonder, for example, about Rosenberg and Simmons' study (Rose Monograph) in which they report asking black inner city third graders questions such as: "'I feel I have a number of good qualities.' Do you agree___, Disagree___." We would guess that few such children understand "qualities" or even the words "agree, disagree." And third graders are much advanced over first graders.) To get permission to observe or to interview as we did at various times and sites, and to carry out the tasks in the proper sequence over a five-year period, is no small undertaking. In fact, some parts of the data collection, such as playing a game with a class to get peer ratings, implies that the same clustering which has the disadvantage of lack of independence in sampling units also has the advantage that another presumably important variable--peer ratings--can be measured.

By careful study we hoped to elucidate the process of early schooling. Most white suburban school children go to a school much like the one we studied, and by the end of third grade, or even sooner, they seem to be launched into a life trajectory that is fairly well-defined. How does this happen? There is little information available on such things as the expectations parents have for their first grade children or how those expectations related to the child's characteristics. Even precisely how first-grade children's sex relates to their performance is unclear. Reading failures in first-grade are often estimated to be 90% male-10% female in the country as a whole but to our knowledge there is no literature addressing the issue of a possible sex bias in teachers' early evaluations.

Findings reported in this paper, based on a case study of one white middle-class suburban school, cannot necessarily be generalized to the population at large. In particular, race and SES effects remain to be investigated. What the data from this school illuminate is process: how expectations of significant others and feedback provided children may affect children's achievement and academic self-image in the first grade.

We will first present a model of the process of early school attainment and then estimate its parameters. Later we will return to more discussion about the process of early schooling and the implications of the model.

The Models

Just before their earliest report cards were issued in first grade, children were queried about their expectations for marks in reading, in arithmetic, and in conduct. Each child was presumed to have some notion of how well he would perform in each area. During an individual interview the children were asked to "play a game" guessing what marks their forthcoming report card would show in reading, in arithmetic, and in conduct. Great care was taken that the children understood the task and understood the meaning of both "marks" and "report cards." This interview provided data for Time 1 (T1) expectations. Later in first grade, just before the year-end report card was issued, children were again individually interviewed and asked to make the same kinds of guesses concerning the marks they expected to receive on the last report card of that school year. The second interview provided the Time 2 (T2) measure of children's expectations.

The parents of each child were also presumed to have expectations for how well their child would perform in each of three areas, and parents were asked to "guess what mark your child will receive in reading, in arithmetic, and in conduct." Data were gathered only once from parents, usually by interviewers, shortly before the first report card was issued.(Children were interviewed twice during first grade, parents once.) Parents recorded their guesses on stylized replicas of the report cards in use in the school at the time. When necessary, interviewers interpreted to the parents the marking standards used by the school and answered questions parents asked.

Parents also filled out questionnaires indicating, among other things, whether either parent or both would help the child with homework; how far the parent expected the child to go in school (finish high school, some college, finish college, and so on); and what estimate the parent held of the child's ability to do school work.

Factor analyses based on the parent questionnaire items indicated that most of the variance in these data was accounted for by three orthogonal factors corresponding closely with : whether parents would be assisting the child with schoolwork (ASSIS);[2] parents' total educational expectations for how far the child would go in school (T.ED.); and parents' estimate of the child's ability to do school work (ABIL). Accordingly, only these three variables derived from the parent questionnaires (and not the factors) are used in the model.

Children's marks in reading, arithmetic, and conduct, as well as their sex and IQ score, were ascertained from school records. In addition, in the summer before first grade, the children's kindergarten teacher was asked to forecast how well she thought the child would do in reading in first grade. This kindergarten teacher forecast (K.T.F.) constitutes an initial teacher expectation, of course. (See Entwisle and Hayduk 1978 for further details on how data were procured and how the variables were measured.)

Marks on the first report card in first grade are "T1 marks." Marks on the last report card in first grade are "T2 marks." Both marks and expectations were recorded on a scale from 1 to 4 with 1 indicating a high mark or expectation. Table 1 gives the means and standard deviations of all variables. Table 2 gives the zero-order correlations among the variables below the diagonal and pairwise-present N's above the diagonal).

Tables 1 and 2

about here

The variation in the number of cases for variables listed in Table 2 is owing mainly to variation in school practices over the five-year period of this research and to changes in our data collection procedures, and not to non-response. For example, IQ tests were available for only three of the five years because of changes in school district's testing practices. Other differences in N's relating to child-variables are owing to failure to obtain parents permission (about 1%), absence due to prolonged sickness (no more than 1% in any year), or moving to another school during the year (about 5%). (Only children who were present for an entire school year are included.) The kindergarten teachers' forecasts were obtained for the last two years of the study while the parents' estimates of child's ability and how far the child would go in school were obtained only for the last three years of the study. Therefore the maximum attrition in any one year owing to selective factors in the sample is less than 10%.

Children in this school were above-average in IQ (113.4) and were generally optimistic in their expectations. In reading, for example, the average expectation was 1.65 corresponding with a mark between an A (1.0) and a B (2.0). Parents were also optimistic about how well their children would perform, especially in reading. (Their average expectation was for a reading mark of 1.73.) It turned out that on the average parents were slightly less optimistic than their children about marks in all three areas, and that initial marks were actually lower than either parents or children expected. Year-end marks on the average equalled or exceeded the initial expectations of both parents and children, however.

Since agreement between averages may not signify agreement case by case, "discrepancies" were calculated by comparing marks received with the expectations of both parents and children (see Footnote to Table 1). The average discrepancies reveal considerable congruence for parents' expectations and marks, and almost as much congruence for children. Both children's marks and their expectations increased slightly on the average over the first-grade year.

To illuminate the process of early school attainment we estimated recursive models that take into account how parents' expectations for their children, and the children's sex and IQ, may shape children's performance in early first grade, and subsequently how feedback in the form of teachers' marks may serve to modify both children's expectations and their performance in later first grade. Figure 2 specifies the development of children's initial expectations and children's initial marks in first grade as a function of parent's expectations and of three exogenous variables, sex, IQ, and K.T.F. (kindergarten teacher's forecast). This first-cycle models sets the stage for a second model showing how expectation levels and marks change over the rest of the first-grade year (Figure 3). The outputs of Figure 2 serve as inputs for Figure 3.

This division of the school year into two separate time periods allows successive linear models to be used for approximating feedback and other processes often conceptualized in dynamic models. Note particularly that the models proposed here, as well as being adapted for modelling dynamic rather than static processes, allow for non-stationarity. (See Huggins and Entwisle, 1968). That is, there is no assumption that the structural coefficients linking similar variables, say expectations and marks, are non-varying at every stage in the schooling process. Also separating the data by semesters is convenient from the standpoint of computation, for within each cycle up to 140 parameters can be estimated, including covariances among disturbance terms. The reader should note carefully, however, that the position of each variable in the model is exactly specified by time and these models are therefore not to be confused within a 2-wave panel design. Parents' expectations appear before children's expectations and were measured ahead of them. Children's expectations appear before marks and were measured before report cards were issued.

At the end of each time cycle, as mentioned, three different performance measures were examined: marks in reading, arithmetic, and conduct.

Figures 2 and 3

about here

Reading and arithmetic are the core areas of the elementary curriculum, of course. They differ from one another, however, both in the kinds of capabilities presumed to underlie competence and in the socialization practices (say in sex-role expectancies) that may affect early performance.

Conduct is academically vacuous, and so offers a convenient benchmark for evaluating non-cognitive factors that may affect performance in the two academic subjects--"halo effects," for example.

One might think that other home environment influences in addition to parents' expectations are critical in establishing the performance level of first-grade children, and this is why, as mentioned earlier, we asked parents a number of questions reminiscent of those Rosenberg (1965) found informative with parents of older children. As we said, a factor analysis of the parent questionnaire items led to identification of three variables (ASSIS, ABIL, and T.ED.) characterizing the child's home environment. The model in Figure 2 shows these three parental variables inserted as the first set of endogenous variables, and the kindergarten teacher's forecast inserted as a third exogenous variable in addition to IQ and sex.[3] The exogenous variables are assumed to exert separate direct effects on parents' expectations (PE) in each area and on each mark (reading (M_R), arithmetic (M_A), and conduct (M_C)), as well as on children's expectations in each of the three areas (E_R, E_A, E_C). The child's IQ, for example, is assumed to affect parents' expectations for performance in each area separately, children's expectations for each area separately, and children's marks in each area separately.

The possibility for sex and/or IQ to exert separate causal effects is clear. Sex effects, for example, could arise because parents and teachers often expect girls to learn to read more easily than boys (Palardy, 1969). IQ effects may occur because tested mental ability could be seen as relevant to performance in arithmetic but not to performance in conduct. Since many of the children had attended a year of kindergarten before first grade, usually in the same school, it is also likely that the kindergarten teacher could have influenced both the children and their parents. Therefore that teacher's forecast, indicating how well she expected the child to do in reading in first grade, was included.

The paths starting from parents' expectations indicate that parental expectations may influence both children's expectations and their marks. This could come about either by direct socialization or by parents and children sharing the same home environment, or by both. For instance the parents who hold high reading expectations for their children may be the parents who provide books for their children. Likewise, parents can influence performance (as reflected in marks) through direct coaching or by way of an otherwise supportive home environment.

No direct effects are assumed to exist among the triplicate variables (reading, arithmetic, and conduct), whether within mark clusters or within clusters of children's or parents' expectations. That is, children's expectations in reading are not assumed to affect their expectations in arithmetic, or the reverse. (The implied lack of causal ordering between the different triplicate variables and the omission of IQ, SEX, and K.T.F. from the inputs to the second cycle prevents the model from being fully recursive.) Similarly there are no across-area effects of parental expectations on later endogenous variables. The lack of direct effects from parents' expectations for reading to arithmetic marks, for example, reflects a contention that parental expectations are "area specific." The triplicate paths leading from the exogenous variables to parental expectations provide for the development of three distinct expectations, and the parallel paths arising from parental expectations maintain the distinct causal efficacy of these separate expectations. This distinct-area assumption, maintained throughout the models with respect to the three academic areas, was adopted because there is considerable prior evidence of its validity, and also because parents' expectations for reading or arithmetic may respond rather differently to the child's sex.

The "distinct-area" specification arises mainly from substantive concerns, such as the notion that parents or teachers do not see performance in reading and conduct as necessarily related, but the specification has additional benefits. It greatly simplifies the model and reduces the number of free parameters to be estimated. The clustered disturbance terms for the triplicate variables indicate that greater consistency is expected between areas than can be accounted for by the exogenous variables, however. There may be "halo effects," for example, because teachers do tend to assign similar marks in reading and arithmetic. Sets of expectations of all actors might also be made similar by internalized demands for psychological consistency. Furthermore, since each set of variables was measured simultaneously, the correlated disturbance terms for the triplicate variables might reflect common sources of measurement error.

A child's marks and expectations may remain constant or change over time, namely from T1, the time of the first report card in first grade, to T2, the time of the last report card in first grade. One way to model such over-time data is to allow each of the earlier observations on marks and expectations to influence the later observations on these variables directly, as indicated in Figure 3. That is, marks at T1 are assumed to influence marks at T2 (teachers tend to give similar marks from one time to the next) and marks at T1 also influence expectations at T2 (children who do better than they expected may raise their expectations; children who did worse than they expected may lower their expectations). In addition, expectations at T1 may influence expectations at T2 (children may be consistent) and expectations at both T1 and T2 may influence marks (if a child expects to do well this may cause him to do well).

In Figure 3 two additional variables, a within-classroom peer rating ($PEER_2$)[4] and the number of times the child was absent during the first grade (ABS_2) are also included. $PEER_2$ was measured late in the school year, but prior to the time year-end expectations were procured. ABS_2 is the number of absences for each child for the <u>entire</u> school year, with most absences obviously having occurred prior to year-end expectation measurements because expectations were obtained in late May-early June. Absence rates are low in this school (see Table 1), and truancy is no problem whatsoever.

<u>Parameter Estimation</u>

The models depicted in Figures 2 and 3 were estimated using FIML procedures provided by Jöreskog and Sörbom's (1976) LISREL program. The LISREL parameter estimates obtained for Figures 2 and 3 (based on a random half of aggregated data for five first-year cohorts from the single middle-class school) are presented in Tables 3 and 4, respectively. (The second half of our data from these five cohorts is being retained for model verification after a whole set of models, including some for second and third grades and some for other schools, have been formulated.) Zero measurement error was assumed in obtaining these parameter estimates, an assumption implying all variables are measured with complete reliability.

Inputs to the LISREL program were the appropriate correlation matrices (pairwise present). The minimum N assumed for calculation of standard errors is given in each table. All parameters are metric (non-standardized) coefficients for variables input in standard form.

Although the models presented here are recursive and therefore could have been estimated using OLS rather than FIML procedures, there are several advantages in using LISREL besides computational convenience. For one, the program furnishes partial derivatives that gave some clues about the validity of model structure. By far the most important advantage, however, is that as our work proceeds in the future with these and other related data, FIML procedures will allow us to incorporate easily information on measurement error and to explore alternative model structures including, for example, reciprocal effects. Some limited explorations using LISREL to estimate reciprocal effects for the models presented here was useful because it supported our assumption, based mainly on prior experimental evidence and the timing of the observations, that children's initial expectations affect marks rather than the reverse.

The First Cycle (Figure 2 and Table 3)

The initial portion of the model (with T1 children's marks, T1 children's expectations and parental variables as endogenous) fits the data well (x^2 = 11.2, d.f. = 18). To aid the reader in assessing parameter estimates, the model of Figure 2 is redrawn in Figure 4 showing only paths which are more than twice their standard errors.[5] (Even with a non-probability sample, some notion of size of effects relative to sampling fluctuations is helpful.) Also in parentheses after each endogenous variable the complement of the standardized disturbance variance is given (analogous to R^2).

Table 3 and Figure 4

about here

Parents' initial expectations are better predicted than either children's expectations or marks, but some variance in the children's initial expectations and marks is explained by the model. The child's sex affects parents' expectations for conduct and also the child's mark in conduct. In addition the effect of sex on reading marks attained significance, with girls exceeding boys in each instance. (The coefficients are negative because boys are coded 1, girls 2, while expectations are coded 1 to 4 with 1 high.)

IQ significantly affects both the parents' estimates of children's ability to do schoolwork (ABIL.) and parents' total educational expectations (T. ED.). IQ also directly influences parents' expectations for arithmetic, but not their expectations for reading or conduct. The only remaining significant source of parental expectations is the kindergarten teachers' reading forecast (K.T.F.) which significantly influences parents' reading expectations. This forecast was given to the researchers, not the parents, of course. Parents presumably pick up the teacher's expectations for their child from conversations or other indirect sources.

Parental expectations in all three subject areas appear to be shaped largely by parents' estimates of their children's ability, with the provisos that their expectations for reading are also molded by the kindergarten teachers' reading forecasts, their expectations for arithmetic are also modified by IQ (perhaps because they visualize arithmetic performance as mainly dependent on aptitude rather than effort or encouragement), and their expectations for conduct are also tempered by consideration of their child's sex.

Children's expectations are not well accounted for by any of the variables prior to them in the model. No effect in this model exceeds twice its standard error, so we must conclude that children's initial expectations are unpredictable.[6] In earlier exploratory work we found no hint of any relationships between IQ and expectations even at the extremes of both distributions.

Children's initial reading marks are significantly related to sex, IQ, and the kindergarten teacher's reading forecast. Arithmetic marks are responsive only to the kindergarten teacher's reading forecast, although the effects of IQ were fairly large. Conduct marks are directly related only to sex and to parents' expectations for conduct. All other direct influences are very small. The only indirect effects of any magnitude are those of IQ and kindergarten teacher's forecast on parental expectations (via ability), but even these are not substantial.

The negative sign for the parameters linking the kindergarten teacher's (reading) forecast to initial marks indicates high expectations by the kindergarten teacher actually are associated with low performances in first grade. Why this curious effect emerged is not apparent, and it will not be discussed further. It may simply represent sampling fluctuations, especially in view of the pattern of zero-order correlations.

Modeling the Second Cycle (Figure 3 and Table 4)

The model covering the remainder of first grade also produces an acceptable fit (χ^2 = 46.0, d.f. = 42). Happily the explanatory power of the model increased from the first to the second semester, raising the percent of explained variance in marks as follows: reading, 17 percent to 34 percent; arithmetic, 14 percent to 36 percent; conduct, 31 percent to 52 percent. In fact, given the tender age of this population of students, the explanatory power of the model is substantial.

Table 4 and Figure 5

about here

Which variables account for the explanatory power? First, two significant links are established between children's expectations and their marks: (1) children's arithmetic marks at T1 influence their arithmetic expectations at T2; and (2) children's T2 reading expectations modestly influence their T2 reading marks. (No effects appeared previously between T1 expectations and T1 marks or between T1 expectations and T2 marks.) There are, therefore, clear links in both directions: between children's marks and expectations and between their expectations and their marks. Parental reading expectations are the sole significant source of children's year-end reading expectations.

The primary variables affecting children's expectations and marks at the end of first-grade are children's earlier marks. Marks in all three areas have a strong tendency to persist from mid-year to year-end.

Mid-year marks constitute the only precursor of children's year-end arithmetic expectations. The only year-end mark affected by parents' mid-year expectations is that for conduct.

No significant effects emerge from peer ratings or absences, suggesting expectations of peers and number of absences are not involved in the causal structure of children's first-grade marks or expectations, at least in this school.

No significant paths emanate from ABIL, ASSIS, or T.ED. to any "child" variable so these variables assist in specifying the structure of parental expectations (Figure 4), but nothing else.

The overall conclusion is that teacher influences are dominant in determining children's first-grade attainment in reading and arithmetic. Marks at the end of first grade are responsive mainly to earlier marks, largely a "teacher" variable, although parents' expectations have some influence on both mid-year and year-end marks in conduct.

Discussion

The school child is often seen as occupying a central spot in a nest of significant others who influence the child's affective and cognitive development. For this reason the cyclic models presented here incorporate measures from parents, peers, and teachers. Parents' expectations for their children were assessed directly and indirectly, and we obtained some notion of how the child's own characteristics (sex and IQ) shaped parents' expectations. The model also allowed for peer effects but, to the end of first grade at least, peers have negligible influence. This may be a consequence of the way peer influence was measured, or of the school setting (middle-class white), or of the tender age of the children.[7] The third main source of interpersonal influence, identified as "teacher," includes the kindergarten teacher. In this school the kindergarten teacher did not give direct written appraisals via report cards but evaluated the children informally and conferred with parents. It also includes the first-grade teacher, responsible for both the T1 and T2 marks. (All first-grade classrooms in this school were self-contained.) Certainly the inclusion of parents, teachers, and peers does not exhaust the list of significant others, but one would think the only important omission from this list is siblings. Actually some data on siblings were procured, but we decided not to use sibling information because of its intractability.[8]

The Exogenous Variables

The patterns of influence implied by Figs. 4 and 5 suggest early sex-role stereotyping beginning in the first days of school. The child's sex influences both parents' expectations for conduct and the child's marks in conduct; girls receive higher marks and are the targets of higher expectations. Sex stereotypes thus appear to influence both parents' conduct expectations for sons and daughters and their children's actual conduct as evaluated by teachers' marks on the earliest report card the child receives. The impact of the children's first conduct marks on year-end marks in conduct is associated with the largest structural parameter in the two cycles of the model (see Figure 5), so the initial evaluations, linked to sex, mediate persistent effects. Furthermore, although Figure 4 does not contain a link between IQ and early conduct marks, other work with data for the first two cohorts in this same school indicates a sex X IQ interaction such that there is an inverse relation between IQ and conduct marks for boys and a positive relation between IQ and conduct marks for girls (see Entwisle and Hayduk, 1978).[9]

IQ affects parents' expectations both directly and indirectly. Its direct influence is limited to arithmetic, and in this instance high ability fosters high parental expectations. The indirect influence of IQ on all three types of parent expectations is in a similar direction. Significant coefficients link the kindergarten teacher's forecast to first marks in the core areas of reading and arithmetic, and it is the only exogenous variable directly linked to arithmetic marks. Furthermore, the kindergarten teacher's assessments of the children is contrary to that of the first-grade teacher, for the coefficients linking K.T.F. to initial marks are negative in both cases. This pattern of contradictory teacher evaluations may startle the reader but we found in our preliminary work with these data that such contradictory patterns from one teacher to the next seem to be the rule rather than the exception. Similar lack of agreement was noted between first- and second-grade teachers for the first two cohorts of this sample (see Entwisle and Hayduk, 1978). The direct and indirect (ABIL mediated) effects of both IQ and K.T.F. on parental expectations effectively complement one another. However, until further work confirms the patterns of findings, it may be unwise to stress the counter-intuitive findings.

<u>Endogenous Variables</u>

The ABIL, ASSIS., and T. ED. variables have already been partially discussed. The inclusion of ABIL, the parents' estimate of the child's ability to do schoolwork, sheds light on the development of parents' expectations. If the present models are correct, however, parents' expectations do not affect the child's core area performance in the first semester of first grade, nor do they affect children's expectations early in first grade.

The overall pattern suggests that parents form a general estimate of their child's ability and then increment or decrement the estimate in forming their expectations for performance in any particular area by using additional information such as that gleaned from the kindergarten teacher or from consideration of the child's sex. Parental expectations, however, strongly influenced only conduct marks.

The relative lack of parent influence on these first-grade middle-class children is surprising, but it could stem from two sources. First, there is evidence that parents form impressions of their children's ability based on the kindergarten teacher's forecast, which turns out to be inconsistent with the children's initial marks. Second there is evidence that these middle-class parents soft-pedal their expectations for their children, at least insofar as they express these expectations to others. The large majority (64%) of parents in this school said that they expected their child to get a B in reading, certainly a "safe" guess and one which both minimizes pressure upon the child and recognizes school marking norms. At the same time if parents are equally cautious in expressing themselves to their children, they may vitiate their own influence on their children's performance. Children's initial (T1) expectations are not explained by any variables prior to them and thus remain largely unpredictable. That sex, IQ , and peer influences do not appear to affect children's expectations is noteworthy. In line with this, we found that a short test of children's self-esteem (Dickstein, 1972), especially developed for use with young children, also proved fruitless when used as a predictor of expectations in other research with some of the same respondents (Entwisle and Hayduk, 1978).

By the second semester children's expectations responded to prior evaluation (T2 expectations in arithmetic are responsive to T1 marks in arithmetic) and to parents' expectations (T2 expectations in reading are responsive to T1 parents' expectations for reading). Both the unpredictability of children's earliest expectations for themselves and the pattern of influences impinging on their later expectations suggest that children start school with either unformed or unrealistic scholastic expectations: the evaluations they expect are unrelated to the evaluations accorded them. Most initially expect to do relatively well--somewhat between a B and an A--and their initial expectations are somewhat more variable than their expectations later in the year (Table 1). However, how children form their initial expectations remains inscrutable.

Experience in school does not alter the average level of children's expectations much, but it does cause expectations to be noticeably more stable, and to come into line with one or two other variables. In fact the lack of any significant paths from T1 expectations to T2 expectations argues for a continued amorphous state of children's expectations, at least until the end of first grade.

The lack of relationsips between children's expectations at T1 and T2 could also signify complete unreliability, of course, but two varieties of evidence undermine this conclusion. First, short-term test-retest estimates of reliability involving small groups of children interviewed one week apart showed rather good agreement (r = .76) between expectations obtained at the two times. Second, probing interviews to determine what notions children held about marks and report cards indicated that 90% of the children in this school had a clear idea of what they were doing when they responded to the interviewer's questions about expectations. We thus conjecture that the lack of direct paths between initial expectations and expectations at the end of the first grade is not entirely owing to unreliability of the expectation measures.

Taking Figures 4 and 5 at face value, the inference for children's expectations does not disagree with inferences of other workers, namely that children's expectations are determined by school (teacher) experience. Rist (1970), for example, contends that how children are treated in their earliest school days affects how well they do from that time forward, mainly because early treatment affects the kind of academic self-image children forge. Other workers (Entwisle and Webster, 1974 a and b) have shown experimentally that young children's expectations are malleable to evaluations given by adults (teacher surrogates) in classroom-like settings, so the assumption of a link in the present model between teacher's evaluations and children's expectations rests on rather firm ground.

The prediction of children's first-grade marks in reading and arithmetic, while far from perfect, is surprisingly good considering the likely attenuation caused by unreliability in all measures of such young children. Even prediction of the earliest reading mark implies a multiple correlation in excess of .4 between the reading mark and prior variables; prediction of year-end marks implies multiple correlations around .6 for the academic subjects, and over .7 for conduct. Also the variables explaining children's achievement are surprisingly few. Once marks have been assigned by the first-grade teacher at T1, this assignment is more consequential than any other factor in determining performance ratings for the remainder of the year.

Overall the evaluation process appears somewhat unreliable. Teachers' evaluations in first grade do not agree with kindergarten teacher's evaluations, for example. In addition, teachers' evaluations are influenced to a measurable extent by the child's sex (girls rate higher), IQ, and parental expectations. However, once formed, the initial teacher evaluation persists and is only moderated by some relatively small influences of parents' and children's expectations (for conduct and reading, respectively).

Before going on, we should note that in other work we have determined that marks assigned in this school _do_ correlate substantially with standardized achievement tests in reading and arithmetic given later, toward the end of third grade. First-grade marks do not correlate as well with standardized achievement test scores as second- or third-grade marks--this would be expected--but correlations between first-grade marks and standardized achievement test scores are significantly different from zero for a variety of standardized tests of reading and arithmetic. Thus, even though teachers in this school are supposed to assign first-grade marks in terms of effort rather than in terms of the quality of performance, there are some components of first-grade marks which overlap with components measured by standardized achievement tests given in third grade. Most important for our purposes, attainment as indicated here by teachers' marks signifies attainment as measured by objective tests.

A Simpler Model Compared to the Models in Figures 2 and 3

One question the reader might raise is whether models as elaborate as those in Figures 2 and 3 are necessary. Would simpler models suffice? Two varieties of evidence speak to this question, the first and less important being how well children's marks and/or expectations can be explained by a simpler vs. a more elaborate model. The second and more important kind of evidence involves whether the broad outlines of the structures seen in Figures 4 and 5 would be preserved if, say, the kindergarten teacher's forecast and the three variables ABIL, ASSIS, and T.ED. were omitted. We will discuss these points in turn by comparing the outcomes of estimating a simpler model omitting K.T.F., ABIL, ASSIS, and T.ED. (variables enclosed in the box at the lower left of Fig. 2) with the outcome for the models actually estimated.

The amount of variance being explained in children's expectations at T1 is small by any standard (4%, 11% and 11%, respectively), but the complete model in Fig. 2 accounts for considerably more variance than a model containing only IQ,sex and parent's expectations (i.e., omitting variables in the box to the lower left of Fig. 2). We estimated the simpler model and found it accounted for only 2%, 6%, and 3% of the variance in T1 expectations. The proportion of variance in T1 children's expectations that is explained with the more elaborate model is not impressive, but is roughly twice as large as that accounted for by a model with four prior variables omitted.

The relative advantage of the more elaborate model can be seen for T1 children's marks as well (explained variance amounting to 17%, 14%, and 31% compared to 8%, 7%, and 26%). The variance accounted for in marks is again about twice as great for the elaborate as compared with the simpler model. (Both models are better at predicting T1 marks than T1 expectations.)

At T2 the explained variance in children's expectations is considerably greater for the elaborate as compared with the simpler model (13%, 17%, and 17% vs. 6%, 15,%, and 8%), as it is for parental expectations (45%, 46%, and 25% vs. 18%, 32%, and 11%) but the difference between models for T2 marks, although still favoring the more elaborate mode , is small (34%, 36%, and 52% vs. 30%, 34%, and 50%).

The critical question in choosing between models, however, is whether there are structural differences of theoretical significance between a simpler or more elaborate model. First, Figure 2 and Table 3 reveal numerous sizeable paths from the exogenous varaibles to ABIL., ASSIS., and T.ED. and few direct paths from the exogenous variables to parents' expectations, so obviously the complete model makes the nature of parents' expectations clearer than the model omitting ABIL., ASSIS., and T.ED. The simpler model, in fact, shows strong direct influences from IQ to parents' expectations in all three areas. The more elaborate model indicates a direct influence only for parents' arithmetic expectations--the other areas being are related to IQ primarily through the parent's conception of the child's ability.

Neither model reveals any significant links from prior variables to children's expectations at T1.

Most important for us, the elaborate model shows a link between children's own expectations and reading marks not visible in the simpler model, and therefore provides the only indication of causal effects flowing from children's expectations to their performance (marks) at either T1 or T2. Obviously, this difference between the substance of the two models is critical for theorizing and for linking this model to other research (see e.g., Dornbusch and Scott, 1975).

The elaborate model's goodness-of-fit is also superior, for the χ^2's associated with the two cycles estimated for the elaborate model are close to expectation (see note 3, Tables 3 and 4) while for the simple model only fit for the first cycle is close (χ^2 = 14.3, d.f. = 21 and χ^2 = 77.6, d.f. = 45). All in all, according to criteria of explanatory power, goodness-of-fit and (presumably) more accurate identification of causal structure, we are happier with the more elaborate model.

Relation to Studies of Attainment with Older Children

As mentioned earlier, this research on school attainment with young children has implications for studies of status attainment with older individuals, a topic that has captured the attention of many sociologists over the past decade. Analysis and reanalysis of several large data sets--among them the Equality of Educational Opportunity data (Mosteller and Moynihan, 1972), the Project Talent data (Jencks, 1972), several sets of data for the state of Wisconsin (see e.g. Hauser, 1971; Sewell, Haller, and Portes,1969) and a national sample procured by the Educational Testing Service (Alexander and Eckland, 1975)--has led to modifications and elaborations of the basic status attainment model proposed initially by Blau and Duncan (1967), but without exception these studies have been disappointing: altogether a rather small amount of variance in job attainment is explained (typically in the neighborhood of 20 percent), and the contribution of school factors to this variance appears to be small, some think negligible. Despite increasingly sophisticated models, and despite big and carefully measured samples, at this time one can say only that school influences appear relatively unimportant in studies of ultimate status attainment.

Some take comfort in this statement. They interpret it as evidence for the robustness of human learning. After all, they argue, if the learning of important life skills were so fragile a process as to be swayed by every environmental breeze, the human race could hardly have survived generation after generation (see e.g., Stephens 1956:469).

Yet it is hard for many other people to accept that schools make little difference. For one thing, this conclusion flies in the face of all society's myths about the "right school." For another, null findings, whatever their nature, are alike psychologically distasteful, unsettling, disconcerting, and, of course, ultimately unverifiable. For these reasons, the issue of "small school effects" is not likely to go away soon.

Seasoned investigators, in fact, continue to cast about for alternative hypotheses, hoping to catch the influence schools "should exert." Two such hypotheses have been articulated lately: (1) dynamic models should replace the (so-far) static models serving as paradigms for research on school effects because the static models may misspecify, and therefore miss, effects that are principally dynamic in nature (see Sørensen and Hallinan, 1977); (2) school effects may be substantial in the early school years and gradually subside but since practically all sociological research on school effects has focused on the secondary school, any effects present earlier may have gone unnoticed (see Alwin and Otto, 1977). To our knowledge few empirical data exist to inform either hypothesis. Actually, of course, both hypotheses, as well as others, are plausible. That is, schools may exert a significant impact upon children mostly early in their academic careers through a dynamic or feedback process. Although the functional form of models of the schooling process is debatable (see Hauser, 1978), the desirability of multiwave data is not : a continuing process like school learning is unlikely to be elucidated with data gathered at only one or two discrete points.

Fortunately our data can speak to some of these conjectures. First, the targets of our research are very young. Second, using a carefully specified cyclic linear model and applying it repeatedly, we can model a dynamic process involving feedback over time. The cyclic model can thus be regarded as a linear approximation to a non-linear equation model. The models being proposed have all the advantages of linearity, pointed to by Hauser (1978), but we can expect a state of disequilibrium at the start of the status attainment process and hence a corresponding drift in the parameters for subsequent cycles of the model. A further advantage is that the introduction of variables within a semester time frame (cycle) matches the actual timing of important events in children's lives.

The reader should bear in mind that here we have examined only the academic development of a group of white middle-class first graders, and obviously a model estimated with data for one school cannot speak directly to between-school effects. Subsequently, however, we plan to estimate similar models for schools attended by lower-class and minority-group children, and hopefully this work will provide some direct evidence on the nature of between school effects. (Plans for this future work are the major reasons we used FIML estimation procedures even though all models discussed in this paper are recursive and all variables are assumed to be measured without error.)

But, returning to the issue of school effects, in the present data we do find indirect evidence of school effects, because we see both substantial teacher effects (effects of marks) and strikingly different evaluation by successive teachers (kindergarten teachers compared to first-grade teachers over a period of five years). In these terms, the question of whether or not school effects are large boils down to the question of whether variance among schools is large compared to variance among classrooms, and an answer can be guessed even without data from more than one school: if classrooms (teachers) are as variable as our analysis suggests, one would have little hope of finding a significant F-ratio between school and classroom variance, especially since interactions between teacher and school are necessarily confounded. Furthermore, careful observational study of how teachers allocate classroom time and interact with children in this school over the entire kindergarten year reveals huge teacher differences (Berkeley, 1978). It may be mistaken, however, to phrase the school-effects question simplistically in terms only of whether or not there are differences among (nested) classrooms. With models of the type offered in this paper, school effects could manifest themselves in several other ways: (1) by different kinds of non-stationarity; (2) by differences in model structure from one school to another; (3) by a difference in the rate of approach to an equilibrium state even with stationary and structurally identical models; and possibly in other ways. Actually these kinds of differences among schools would be much more interesting, if they exist, than large differences between schools with the source of the differences left unspecified because structural models differing from one school to another might point to different mechanisms fostering achievement in different places, to differences in process. In other words, if peers of lower-class students are more critical to the process of achievement than peers of middle-class children, this would provide a neat explanation for the common finding than low SES students profit from integration and high SES students are not harmed by it.

To address another conjecture raised in the recent literature, there seems to be wisdom in studying children's achievement early in their academic careers. For one thing, if IQ test scores are taken as a proxy for ability, this paper offers evidence that performance during first grade is not strongly affected by measured ability; rather performance levels are responsive to evaluations made by teachers. And performance levels, once established, tend to persist. We have evidence that these children are entering achievement trajectories very early in their school careers. Examples drawn from the psychological and educational literature, already mentioned, suggest this (Husen's (1969) large cross-national study showed teachers' ratings in third grade to be good predictors of children's subsequent educational careers, and Kraus' (1973) 20-year longitudinal study of a group of New York City children showed that third grade reading achievement correlated strongly with all subsequent reading, mathematics, and intelligence test scores.) As Kahn (1978:xiv) says: "...students who do well in high school and go on to college have values and attitudes different from those who do poorly...but these differentiating characteristics were with them before they entered high school." Furthermore, predictor variables used in studies of secondary school populations, such as peer-influence variables, may have explanatory power precisely because they are surrogates for variables influential much earlier in the schooling process. The kinds of friends a child has, for example, if not their actual identity, are probably similar between grade school and high school. The message is clear: to understand later status attainment may require understanding of early schooling effects.

The magnitudes of explained variance may seem small, but explaining 34% to 36% of the variance in children's first-grade marks in reading and arithmetic implies multiple correlations close to .60. Given the amount of attenuation one would expect because of unreliability of measures for such young children, the variance explained may be close to an upper limit of what could reasonably be expected.

Summary

Some tentative conclusions are:

(1) Children's initial expectations in first grade are unpredictable and children's later first-grade expectations are shaped to only a slight extent by mark feedback and parents' expectations. It is of particular note that initial expectations are apparently refractory to the home environment (in the form of parental expectations), the school environment (in the form of the kindergarten teachers' forecast and peer popularity).

the social environment at large (in terms of sex stereotyping), and are even unrelated to the child's own capabilities as measured by IQ tests. The absence of early crystallization of children's expectations, if it holds up, is an important finding. If crystallization does not occur until second or third grade (or even later), it may be because the child is unsure of how he rates with respect to other children until he has been repeatedly evaluated.

(2) Marks in this school were affected mainly by teacher influences, and to a lesser extent by parents' expectations and the child's sex and IQ. The child's own expectations seemed to have little effect on marks, except that by the end of first grade they came into play for reading. The influence of other variables on marks is small, but including them increases the amount of explained variance in marks.

The strong persistence of marks suggests that teachers' initial evaluations may have far-reaching consequences. This is disturbing for many reasons, among them that successive teachers' evaluations can be, and sometimes are, contradictory. Also it is disturbing because it implies that it may be difficult for the child to perceive himself in control of the schooling process.

FOOTNOTES

[1]Throughout this paper the masculine pronoun will be used for simplicity. In all cases "he" should be read as "he and/or she."

[2]Only the reported intention of spouse's (not own) homework assistance was used. This variable had greater variance and is presumed to be less influenced by social desirability than the parent's report of her own intention to assist the child.

[3]The dashed rectangle enclosing these variables will be d scussed later.

[4]To obtain peer rating, two captains were first selected by the teacher as "best overall in reading and social maturity," and then the captains chose up sides to play a "reading game." The order in which team members were chosen by the captains was used as the child's "peer rating." (See Entwisle and Hayduk (1978) for more detail on how this variable was measured.)

[5]The model is not "trimmed," however; the values of parameters shown are those given in Table 5.

[6]Since later in the year (Figs. 3 and 5) a measure of popularity with peers is unrelated to either children's marks or expectations, we conjecture that T1 children's expectations would not be influenced by peer popularity either, although it was not measured at T1.

[7]Studies of high school social climate, however, may overestimate peer influence, for a number of workers point to relatively stronger parent influences than peer influences if the time sequence in which variables are measured corresponds with their ordering in the

student's life cycle.

[8]The number, sex, relative age, and family position of sibs are all critical for evaluating sib influence, but the present sample is too small to allow even rough standardization on these several dimensions of sibship.

[9]We did not incorporate interaction terms in the FIML models presented in this paper because to do so would have enlarged the models beyond our ability to estimate them.

REFERENCES

Alexander, K., and B. K. Eckland. 1975. "Contextual Effects in the High School Attainment Process." American Sociological Review 40:402-416.

Alwin, D. F., and L. B. Otto. 1977. "High School Context Effects on Aspirations." Sociology of Education 50: 259-273.

Berkeley, Muriel V. 1978. Inside Kindergarten. Unpublished doctoral dissertation, Johns Hopkins University.

Blau, Peter, and Otis D. Duncan. 1967. American Occupational Structure. New York: John Wiley.

Dickstein, Ellen. 1972. The Development of Self-Esteem: Theory and Measurement. Unpublished doctoral dissertation, The Johns Hopkins University.

Dornbusch, Sanford M., and W. Richard Scott. 1975. Evaluation and Exercise of Authority. San Francisco: Jossey-Bass.

Entwisle, Doris R., and Leslie A. Hayduk. 1978. Too Great Expectations. Baltimore: Johns Hopkins University Press.

Entwisle, Doris R., and Murray Webster. 1974a. "Expectations in Mixed Racial Groups." Sociology of Education 47: 301-318.

__________. 1974b. "Raising Children's Expectations for Their Own Performance: A Classroom Application." Chapter 7 in Expectation States Theory: A Theoretical Research Program, edited by J. Berger, T. Conner, and M. H. Fisek. Cambridge: Winthrop Publishers.

Hauser, Robert M. 1971. Socioeconomic Background and Educational Performance. The Arnold M. and Caroline Rose Monograph Series. Washington, D.C.: American Sociological Association.

__________. 1978. "On 'A Reconceptualization of School Effects'." Sociology of Education 51:68-72.

Huggins, W. H. and Doris R. Entwisle. 1968. Introductory Systems and Design. Waltham, Mass.: Wiley (formerly Ginn/Blaisdell).

Husen, T. 1969. Talent, Opportunity and Career. Stockholm: Almqvist and Wiksell.

Jencks, Christopher S. 1972. Inequality. New York: Basic Books.

Jöreskog, K. G., and Dag Sörbom. 1976. LISREL III: Estimation of Linear Structural Equation Systems by Maximum Likelihood Methods. A FORTRAN IV Program. National Educational Resources, Inc.

Kahn, R. L. 1978. "Foreword" in Youth in Transition by J.O. Bachman, P. M. O'Malley, and Jerome Jonston. Ann Arbor: University of Michigan.

Kraus, P. E. 1973. Yesterday's Children. New York: Wiley.

Mosteller, Frederick, and D. P. Moynihan, eds. 1972. On Equality of Educational Opportunity. New York: Vintage Books.

Palardy, J. M. 1969. "What Teachers Believe--What Children Achieve.' Elementary School Journal 69: 370-374.

Pedersen, E., T. A. Faucher, and W. W. Eaton. 1978. "A New Perspective on the Effects of First-grade Teachers on Children's Subsequent Adult Status." Harvard Educational Review 48: 1-31.

Rist, R. C. 1970. "Student Social Class and Teacher Expectations: The Self-Fulfilling Prophecy in Ghetto Education." Harvard Educational Review 40: 411-451.

Rosenberg, Morris. 1965. Society and the Adolescent Self-Image. Princeton: Princeton University Press.

Sewell, W. H., A. O. Haller, and A. Portes. 1969. "The Educational and Early Occupational Attainment Process." American Sociological Review 34: 82-91.

Sørensen, A. B., and M. T. Hallinan. 1977. "A Reconceptualization of School Effects." Sociology of Education 50: 273-289.

Stephens, J. M. 1956. Educational Psychology. New York: Holt.

Table 1: Means and Standard Deviations for All Variables[1]

Variables	Mean	S.D.
I.Q. (Primary Mental Ability)	113.4	10.95
Kindergarten Teacher's Forecast	1.88	0.80
Children's Initial Expectations (T1)		
Reading	1.65	0.83
Arithmetic	1.83	0.78
Conduct	1.67	0.84
Children's Year-End Expectations (T2)		
Reading	1.55	0.58
Arithmetic	1.72	0.78
Conduct	1.61	0.64
Children's Initial Marks (T1)		
Reading	1.82	0.58
Arithmetic	1.85	0.48
Conduct	1.81	0.69
Children's Year-End Marks (T2)		
Reading	1.65	0.62
Arithmetic	1.65	0.59
Conduct	1.68	0.75
Parents' Initial Expectations (T1)		
Reading	1.73	0.65
Arithmetic	1.76	0.61
Conduct	1.76	0.62
Parents' Rating of the child's ability[2]	2.27	0.81
Parent report of spouses intention to assist[3]	1.24	0.43
Parents' total educational expectation[4]	2.14	0.79
Children's Mark-Expectation Discrepance (T1)[5]		
Reading	4.17	0.99
Arithmetic	3.99	0.85
Conduct	4.12	0.94
Parent's Mark-Expectation Discrepance (T1)[5]		
Reading	4.08	0.75
Arithmetic	4.07	0.65
Conduct	4.05	0.70
Change in Children's Expectations (T1 to T2)[5]		
Reading	3.87	0.98
Arithmetic	3.83	0.99
Conduct	3.89	0.95
Change in Children's Marks (T1 to T2)[6]		
Reading	3.82	0.58
Arithmetic	3.80	0.54
Conduct	3.85	0.60
Peer Sociometric Rating[7]	0.48	0.30
Absences in first grade	8.49	5.49

[1] Data for this table are derived from a random half of the full data set, in turn derived from five yearly cohorts of children entering first grade from Sept. 1971 to 1975 inclusive. Measures are for children with odd ID numbers. Analysis of the other half of the data is being postponed until exploration of the full data set, which includes 2 more schools and 2 additional grades, has been completed. Models developed from one half of the data will then be checked with estimates derived from the second half.

[2] Scored: 1 = among the best; 2 = above average; 3 = average; 4 = below average; 5 = among the poorest

[3] Scored: 1 = yes, 2 = no

[4] Scored: 1 = more than college; 2 = college; 3 = some college; 4 = high school; 5 = some high school

[5] Scaled so 1 indicates performance was 3 units better than expected, while 7 indicates performance was 3 units worse than expected, and 4 indicates matching of performance and expectations.

[6] Scales so 1 indicates an upward change of 3 units, and 7 a downward change of 3 units, while 4 indicates no change.

[7] Scaled so 0 is high popularity, 1 is low popularity.

Table 2: Correlations among the Basic Variables[1]

										T1			T2			T1			T2		
	Sex	IQ	K.T.F.	Abil.	Assis.	T.Ed.	PE_R	PE_A	PE_C	E_R	E_A	E_C	E_R	E_A	E_C	M_R	M_A	M_C	M_R	M_A	M_C
Sex	--	114	95	100	174	98	172	172	170	204	204	204	191	191	191	185	185	185	188	188	186
IQ	-.070	--	37	24	97	23	97	97	94	108	108	108	109	109	109	108	108	108	108	108	[illegible]
K.T.F.	-.127	-.687	--	58	79	57	76	76	77	95	95	95	83	83	83	82	82	82	82	82	82
Abil.	-.014	-.496	.499	--	97	98	95	95	96	99	99	99	94	94	94	88	88	88	88	88	87
Assis.	-.041	.044	.023	-.033	--	96	168	168	166	168	168	168	164	164	164	157	157	157	154	154	153
T.Ed.	.221	-.286	.056	.261	.004	--	93	93	94	97	97	97	92	92	92	86	86	86	86	86	85
PE_R	-.082	-.408	.545	.611	.026	.131	--	172	169	166	166	166	162	162	162	155	155	155	[illegible]	152	151
PE_A	.124	-.556	.423	.590	.051	.168	.500	--	169	166	166	166	162	162	162	155	155	155	152	152	151
PE_C	-.215	-.232	.274	.414	.180	.099	.336	.292	--	165	165	165	160	160	160	154	154	154	150	150	149
E_R - T1	[illegible]	[illegible]	[illegible]	.042	-.066	-.109	.138	.078	.146	--	204	204	183	183	183	181	181	181	179	179	177
E_A - T1	.099	-.222	.009	.090	-.041	.222	-.016	.185	.064	.009	--	204	183	183	183	181	181	181	179	179	177
E_C - T1	-.180	.034	.170	.152	.098	.004	.037	.073	.082	.115	-.048	--	183	183	183	181	181	181	179	179	177
E_R - T2	-.089	-.014	-.018	.015	-.044	-.067	.206	.110	.056	.082	.121	.107	--	191	191	177	177	177	180	180	178
E_A - T2	.179	-.120	.045	.174	-.103	.143	.258	.286	.059	.103	.173	-.109	.084	--	191	177	177	177	180	180	178
E_C - T2	-.321	-.036	.101	-.096	-.018	-.193	-.066	-.058	.131	.027	.081	.202	.118	.034	--	177	177	177	180	180	178
M_R - T1	-.165	-.189	.003	.208	.033	.105	.202	.119	.147	.053	.164	.032	.160	.124	.123	--	185	185	181	181	179
M_A - T1	.033	-.213	-.011	.151	-.039	.036	.179	.262	.101	.078	.151	.064	.103	.300	.100	.427	--	185	181	181	179
M_C - T1	-.391	-.127	.170	.090	.123	-.040	.175	.070	.403	.154	-.011	.251	.104	.044	.240	.428	.257	--	181	181	179
M_R - T2	-.230	-.231	.327	.217	.097	.123	.246	.228	.253	.119	.185	.160	.249	.046	.174	.539	.289	.294	--	188	186
M_A - T2	-.016	-.345	.299	.277	.117	.087	.353	.410	.336	.099	.207	.053	.130	.200	.048	.492	.503	.341	.542	--	186
M_C - T2	-.403	-.120	.173	.145	.219	-.039	.291	.146	.501	.080	.031	.234	.021	.060	.178	.332	.221	.656	.315	.374	--

[1] Correlations below the diagonal, N's above the diagonal.

Table 3: Initial Marks and Expectations[1, 2, 3]

FIML Estimates from Correlation Input (Row Headings Indicate Dependent Variables)

	Sex	IQ[4]	K.T.F	Abil.	Assis.	T.Ed.	Parents' Expectations R	Parents' Expectations A	Parents' Expectations C	Children's Expectations R	Children's Expectations A	Children's Expectations C	Childrens Marks R	Childrens Marks A	Childrens Marks C
Ability	.004 (.100)	.289 (.137)	.301 (.138)												
Assistance	-.021 (.119)	-.107 (.162)	.095 (.163)												
Total Education	.164 (.110)	.420 (.151)	-.212 (.152)												
Parents' Expectations at T1:															
Reading	-.028 (.090)	-.066 (.129)	.353 (.128)	.464 (.104)	.029 (.086)	.015 (.094)									
Arithmetic	.120 (.089)	.387 (.127)	-.049 (.127)	.449 (.103)	.089 (.085)	-.084 (.094)									
Conduct	-.209 (.105)	.042 (.151)	.025 (.150)	.375 (.122)	.184 (.100)	.033 (.110)									
Children's Expectations at T1:															
Reading	.005 (.119)	.046 (.171)	-.002 (.178)	-.070 (.154)	-.071 (.114)	-.131 (.125)	.201 (.151)								
Arithmetic	.001 (.115)	.288 (.174)	-.222 (.163)	-.057 (.148)	-.032 (.110)	.145 (.121)		.129 (.148)							
Conduct	-.145 (.117)	-.310 (.164)	.292 (.163)	.171 (.140)	.090 (.112)	.070 (.120)			.068 (.124)						
Children's Marks at T1:															
Reading	-.235 (.110)	.366 (.159)	-.419 (.164)	.167 (.140)	.053 (.106)	.019 (.117)	.102 (.125)			.004 (.094)					
Arithmetic	-.049 (.114)	.327 (.172)	-.359 (.163)	.051 (.144)	-.027 (.108)	-.085 (.120)		.229 (.135)			.029 (.105)				
Conduct	-.301 (.103)	.187 (.147)	-.048 (.146)	-.144 (.123)	.037 (.098)	-.021 (.106)			.341 (.100)			.177 (.092)			
Disturbance Variances and Covariances for the Clusters of Triplicate Variables															
				.707 (.115)			.546 (.089)			.958 (.156)			.829 (.135)		
				-.027 (.097)	.992 (.162)		.112 (.064)	.536 (.087)		.031 (.106)	.886 (.145)		.315 (.104)	.860 (.140)	
				.161 (.092)	.034 (.107)	.856 (.140)	.049 (.074)	.048 (.073)	.747 (.122)	.137 (.108)	.004 (.102)	.886 (.145)	.311 (.094)	.206 (.092)	.685 (.112)

[1]R, A, and C refer to reading, arithmetic, and conduct, respectively.

[2]Standard errors appear in brackets (N = 76).

[3]Testing the fit of this model provides a $\chi^2 = 11.2$, d.f. = 18.

[4]IQ was coded inversely so high IQ values correspond with high values on other variables (expectations and marks were coded with 1 high, 4 low).

Table 4: Marks and Expectation Changes Over First Grade[1,2,3]

FIML Coefficient from Correlation Input (Row Headings Indicate Dependent Variables)

	Children's Expectations at T1			Children's Marks at T1						Parents' Expectations at T1			Peer		Children's Expectations at T2			Children's Marks at T2		
	R	A	C	R	A	C	Abil.	Assoc.	T. Ed.	R	A	C	Rating	Absences	R	A	C	R	A	C
Children's Expectations at T2:																				
Reading	.026 (.104)			.139 (.107)			-.216 (.135)	-.060 (.103)	-.050 (.107)	.286 (.131)			.075 (.105)	-.174 (.104)						
Arithmetic		.074 (.105)			.234 (.105)		-.039 (.128)	-.102 (.100)	.097 (.106)		.216 (.128)		.002 (.102)	-.089 (.102)						
Conduct			.179 (.105)			.152 (.113)	-.182 (.117)	-.083 (.103)	-.146 (.104)			.146 (.122)	-.038 (.102)	-.161 (.102)						
Children's Marks at T2:																				
Reading	.087 (.085)			.358 (.088)			.137 (.116)	.101 (.089)	.074 (.093)	-.031 (.110)			.082 (.091)	.052 (.092)	.178 (.088)					
Arithmetic		.081 (.087)			.387 (.089)		.102 (.111)	.130 (.088)	-.009 (.093)		.197 (.107)		.007 (.090)	.031 (.090)		.021 (.089)				
Conduct			.074 (.081)			.496 (.086)	.008 (.090)	.101 (.078)	-.052 (.089)			.265 (.092)	.022 (.077)	.092 (.078)			.005 (.082)			

Disturbance Variances and Covariances for the Clusters of Triplicate Variables

	Children's Expectations at T2 R	A	C	Children's Marks at T2 R	A	C
R	.874 (.135)			.658 (.102)		
A	-.019 (.093)	.830 (.128)		.229 (.075)	.640 (.099)	
C	.036 (.093)	.042 (.091)	.832 (.128)	.069 (.062)	.065 (.061)	.477 (.074)

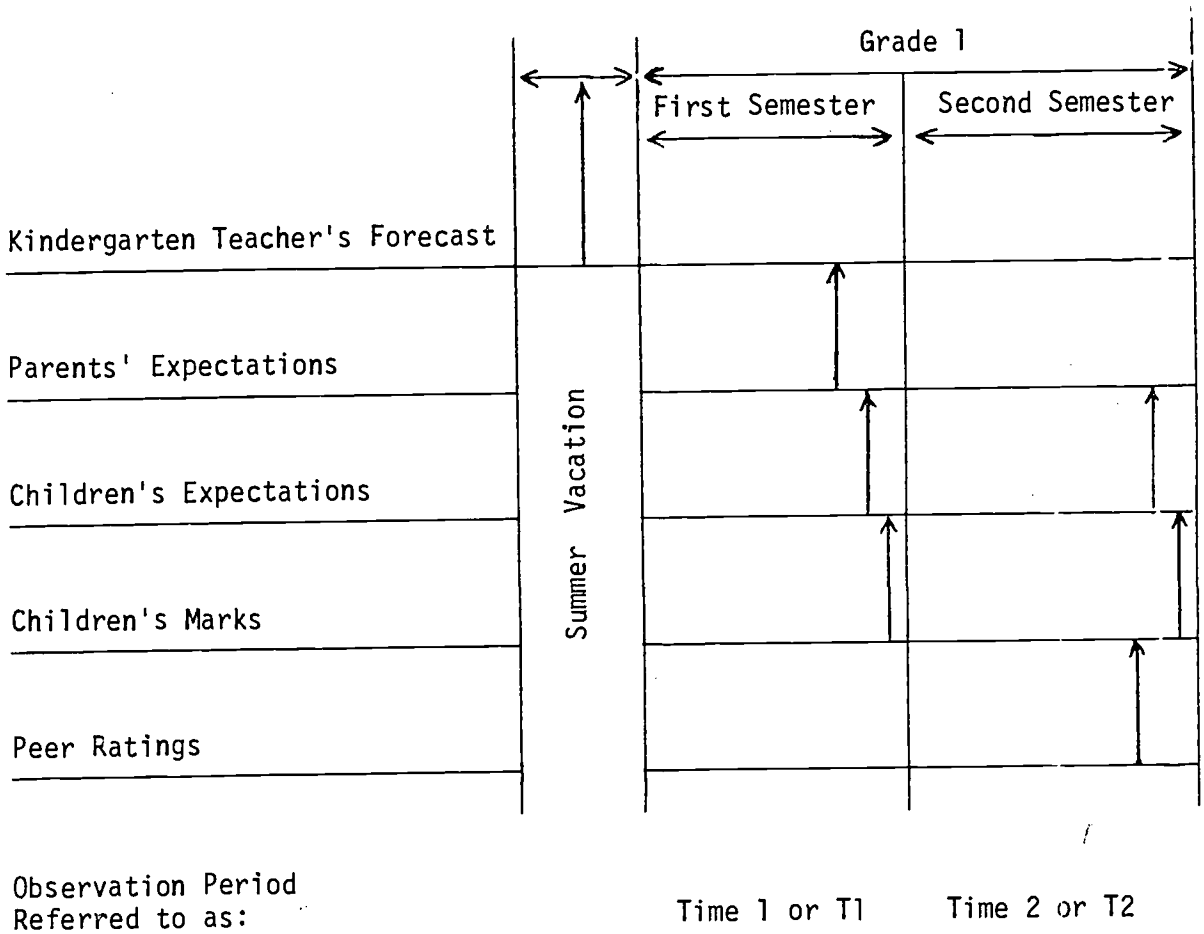
[1]R, A, and C refer to reading, arithmetic, and conduct, respectively.

[2]Standard errors appear in brackets (N = 85).

[3]Testing the fit of this model provides a $\chi^2 = 46.0$, d.f. = 42.

Figure 1

Observation Periods

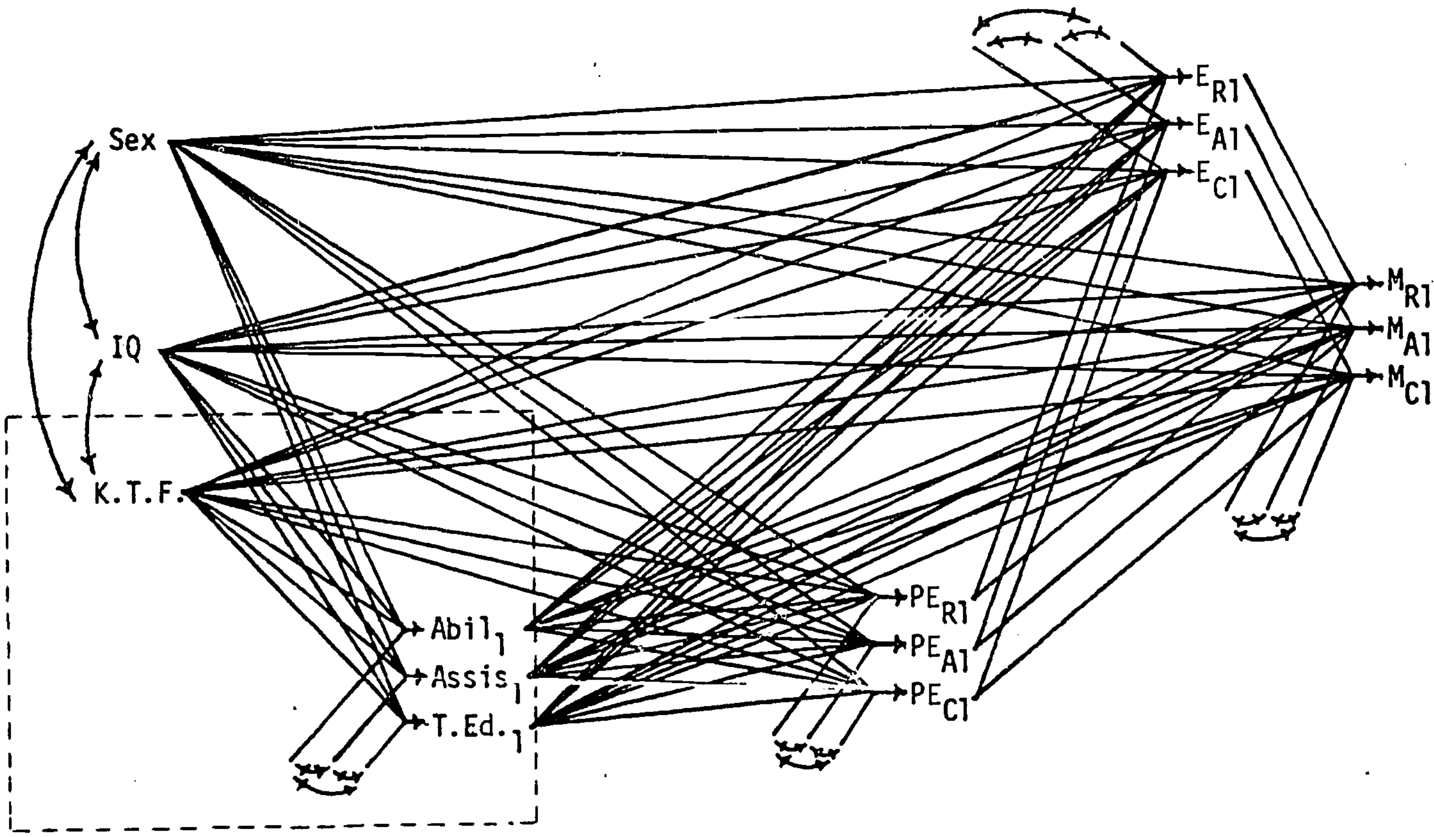


Notes:

1) an "↑" indicates observations were made on this variable (set) at the indicated time.

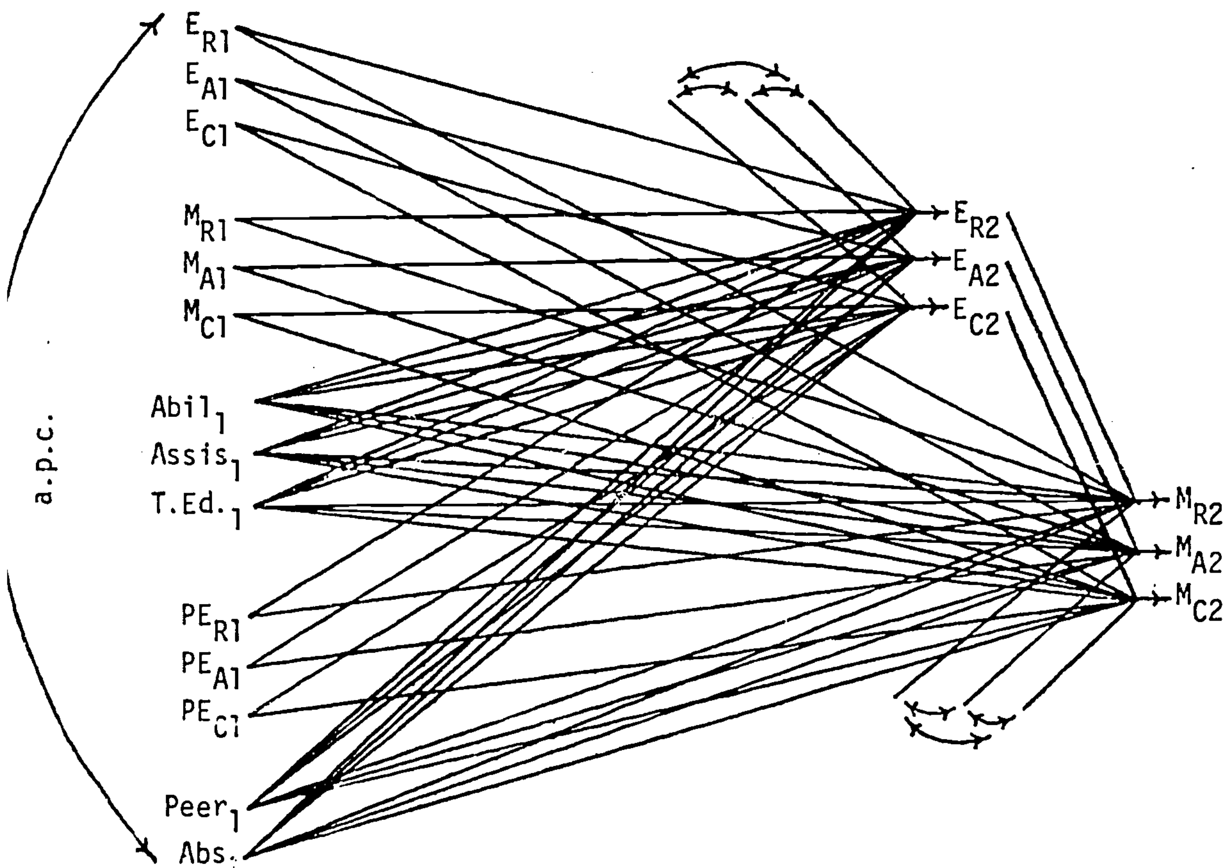
2) "Time 1" refers to the end of the first semester in grade one and T2 (Time 2) refers to the end of the second semester (year end). This notation holds no matter when the cohort was actually observed in terms of years.

Figure 2: Initial Marks and Expectations



Note: See text for explanation of dashed rectangle.

Figure 3: Mark and Expectation Changes Over First-Grade



a.p.c. -- All possible correlations appear for the variables enclosed within the arc.

Figure 4: Linkages Among Initial Marks and Expectations
Illustrating only those structural coefficients which exceed twice their standard error.
(complement of disturbance variance terms in parentheses)

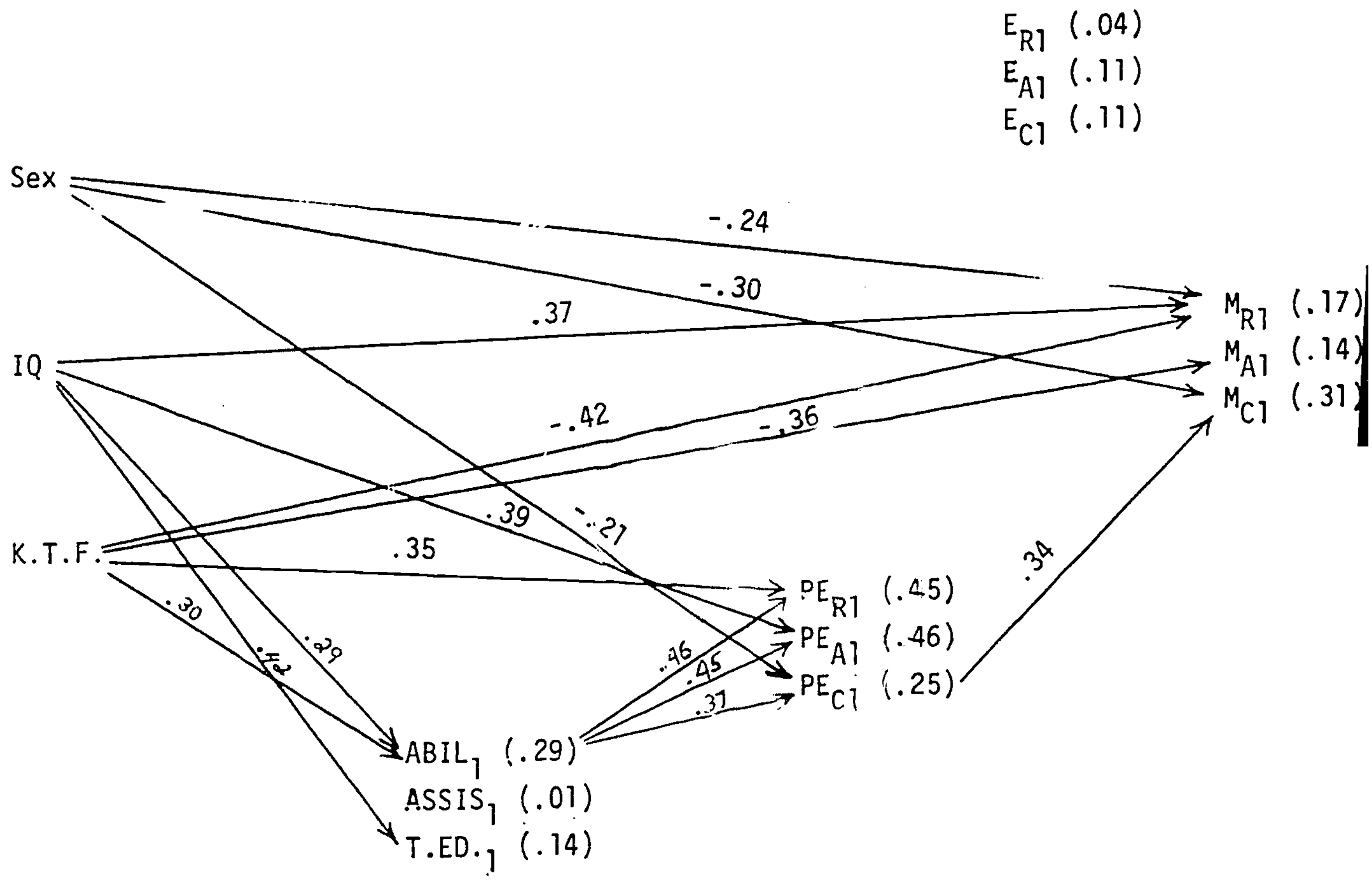


Figure 5: Linkages Among T1-T2 Marks and Expectations
Illustrating only those structural coefficients which exceed twice their standard error.
(Complement of disturbance variance terms in parentheses)